

REMARKS

Claims 1-18 are pending in this application. By this Amendment, claims 1 and 3 are amended and claims 12-18 are added.

In paragraph 1, on page 2 of the Office Action, the specification was objected to for incorporation of essential material. The incorporation by reference has been canceled. In addition, the specification has also been amended to correct a minor informality found therein.

In paragraphs 3-9 of the Office Action, various claims were rejected under 35 U.S.C. §102 as being anticipated. Specifically claims 1-3, 6, 7 and 11 were rejected as anticipated by Yoshida et al. (hereinafter "Yoshida"), U.S. Patent No. 5,409,608; claims 1-3, 6 and 8-10 as anticipated by Shepherd, U.S. Patent No. 3,279,605; claims 1-3, 5, 8 and 10 as anticipated by Mies, Jr. et al. (hereinafter "Mies"), U.S. Patent No. 2, 760,641; claims 1-4, 8 and 9 as anticipated by Bivens, U.S. Patent No. 5,595,107; claims 1-3 and 10 as anticipated by Maignen, U.S. Patent No. 677,893; claims 1, 3, 5 and 6 as anticipated by Pall, U.S. Patent No. 4,033,881; and claims 1, 2, 9 and 11 as anticipated by Hashimoto et al. (hereinafter "Hashimoto"), U.S. Patent No. 5,584,988. The rejections are respectfully traversed.

Applicants' claim 1 calls for a filter comprising at least one filter member that forms at least two opposed surfaces that face each other; at least one porous member contained in the at least one filter member; and a coupling member having an opening that is open to the at least one porous member so that the porous member communicates with a coupling member, wherein a space between the at least two opposed surfaces of the at least one filter member is filled with the at least one porous member, the at least one filter member removes foreign matters contained in a liquid, and the liquid from which the foreign matter are removed is discharged through the porous member and the coupling member. None of the applied art discloses such a device.

Addressing each of the applied references separately, Yoshida discloses an apparatus very similar to that described in Applicants' Background of the Invention. Specifically, Yoshida discloses a mesh member 12 that is held open by a plurality of longitudinal and lateral ribs 14, 15, 16, 17. Inserted within the mesh number 14 is a deformable mesh cylinder 31 (part of suction nozzle 30) that is connected to a coupling 22. Thus, Yoshida does not disclose at least one filter member that forms at least two opposed surfaces with at least one porous member contained in the at least one filter member, wherein the space between the at least two opposed surfaces of the at least one filter member is filled with the at least one porous member as found in claim 1. Both the filter body 10 and the deformable mesh cylinder 31 are hollow and, as can be seen clearly in Figure 1, there are many gaps or open spaces therein, such that there is no at least one porous member contained within the filter member that fills the filter member.

Shepherd, directed to an edible oil filter discloses, as best shown in Figure 2, a pair of perforated plates 31, 29 that are separated from one another. On an outer surface of the perforated plates 31, 29 are filter sheets 32, 28. A space 40 is found between the perforated plates which feeds into the coupling member 21. Thus, again, Shepherd does not have a space between the at least two opposed surfaces of the at least one filter member that is filled with at least one porous member. The porous member does not fill the space as there is no truly porous member and there certainly is a gap between the two perforated plates 31, 29 which means there is a gap between the filter sheets 32, 28.

Mies discloses a filtering device very similar to Shepherd. The device of Mies consists of a perforated plate screen 50 and an opposing other filter element 62. Both the plate screen 50 and the other filter element 62 are covered with sheets of filtering material 70. Between the plate screen 50 and the other filter element 62 is a gap (undesigned) into which is fed the filtered fluid, which then enters recesses 58 of the screw coupling 40. Therefore,

Mies, again, does not have the space between the at least two opposed surfaces of the at least one filter member filled with the at least one porous member. The pair of porous members, that is, the plate screen 50 and the other filter element 62 are well separated from one another and do not fill the area between the sheets of filtering material 70.

Bivens discloses a filtering device that also treats the material that is being filtered. The device has similarities to what is described in Applicants' Background of the Invention in that it has a framework for separating the screening elements and then adds other features. The device of Bivens comprises a bottom 34 and a lid 32. At a center of the device is a central spool 16 that provides the coupling device. A framework extends around both the lid 22 and the bottom 34. In addition, there are wall sections 30 that extend outwardly from the spool 16 to divide the device into quarters. Treatment pouches 18 are then laid into each quarter and the lid 22 closed.

A filter 10 is then placed over the assembled inner shell, made up of the bottom 34 with a closed lid 22 and the pouches 18 contained therein. The filter 10 has a top and bottom filter screen 66, 68. The filter screen 10 is then closed at its open end and the filter is assembled.

Again, Bivens does not disclose the space between the at least two opposed surfaces of the at least one filter member is filled with the at least one porous member. There is no discussion that the pouches 18 contain or are a porous member, they being a treatment material 42 that treats the liquids flowing through the pouch made of a woven material permeable to liquids (column 3, lines 36-39). As is shown in Figures 5, 6, 10 and 11, the pouches 18 do not fill the quarters in which they are inserted, rather they partially fill the quarters. Further, the pouches 18, even if one were to consider them a porous member, which they are not as they contain a treatment material thereby not meeting the definition of porous materials found in the specification, are not in the space between the at least two opposed

surfaces of the at least one filter member as the filter 10 is an envelope that is inserted over the inner shell 14, which is not considered part of a filter element as it only has perforations to allow anything to pass therethrough. The filtration is provided by the filter 10.

Maignen discloses a device having a hollow inner portion or shell (lines 5 and 6) which has a base member A covered with an asbestos cloth C and a second covering D. The device may be tubular, to be tied off as shown in Figure 1, or may be constructed of walls that are assembled or clamped together as shown in Figure 2. However, Maignen again does not show a space between the at least two opposed surfaces of the at least one filter member filled with at least one porous member as Maignen shows a hollow inner portion filled with only the filtered fluid.

Pall discloses a multilayer paper sheet filter cartridge 10. The filter comprises a pair of woven nettings 5, 7 that have layered therebetween two filter sheets 2, 1. The two filter sheets have different filtering capabilities. The filter sheet is then folded into a corrugated shape and placed around a cylindrical core 14 having apertures 15. An outer cylinder 13, which appears to be a wire mesh but is undescribed, then provides an outer surface to contain the corrugated filter. End caps 16, 17 are then applied to the ends of the filter, each end cap 16, 17 having an aperture 19. Thus, in Pall the outer surface 13 provides no filter function, at least there is no such indication in Pall there being no description of 13, and therefore there is no porous member that fills the space between the at least two opposed surfaces of the at least one filter member. The filling in this case is the filter and, as can be seen in Figure 3, it does not completely fill the space between the outer screen mesh 13 and the inner cylindrical core 14 because of its corrugated structure, that by definition produces gaps when arranged in a cylindrical form. There is nothing between the filter elements 1, 2 as they are laminated to one another.

Lastly, Hashimoto again returns to the type of filter device substantially as described in Applicants' Background of the Invention. The device comprises a filter 7, using Figure 2 as an example, that has a framework 10 to provide its shape. The filter itself has a main filtration chamber 8 that is defined by a peripheral walls 8a, 8b that are made of a filter material. The actual device is divided into two chambers with the lower chamber 8 being the filter chamber, and having an upper side peripheral wall 8a and an upper return chamber 11. All embodiments have a similar structure, the sole difference being the upper surface of the return chamber 11, in the case of Figure 2, is an impermeable resin. In the remaining embodiments, the upper surface is formed of a filter material and there is a framework provided in both chambers. Thus, Hashimoto does not disclose the claimed invention with a space between the at least two opposed surfaces of the at least one filter member filled with the at least one porous member as it has no porous member and Hashimoto does not fill the space with anything other than the framework. Therefore, in all likelihood, Hashimoto suffers all of the problems Applicants discussed in their Description of Related Art.

Thus, for the reasons discussed above with respect to claim 1, none of the applied references literally disclose Applicants' claimed invention and the rejection under 35 U.S.C. §102 is inappropriate. Further, for the reasons discussed, none of the references suggest the claimed invention.

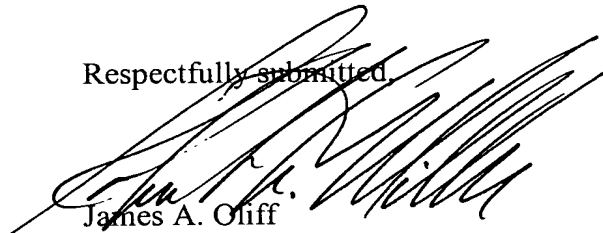
Further, none of the references either anticipate nor suggest the subject matter of the dependent claims to which they are applied for the reasons discussed above and for the additional features recited in the dependent claims.

The above discussion of the references also clearly shows none disclose or suggest the invention of added claims 12-18. The added claims are fully supported by the Figures and the description thereof.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-18 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


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